CONFERENCE GRANTS

The NRI provides partial support to conferences which bring together scientists in order to identify research needs, update information, or advance an area of research important to U.S. agriculture. Conference proposals are reviewed in the program area most appropriate for the type of research proposed; therefore, these nontechnical summaries also appear under the respective program areas.

9702736 Stress: Impact on Animal Well-Being
Moberg, G.P.; Mench, J. **Grant 97-35204-4857**

University of California, Davis
Department of Animal Science **$5,000**
Davis, CA 95616-8571 **1 Year**

Partial support will be provided for an international conference on animal stress which will address five critical areas related to developing the basis for understanding the impact of stress on animal well-being: 1) what are meaningful measures of stress in animal, 2) what constitutes long-term stress in animal, 3) the cognitive and motivational aspects of animal stress, 4) the comparative, evolutionary and environmental aspects of stress, and 5) what can be done to reduce animal stress. The goal of the conference is to facilitate the exchange of research data and ideas between experts in basic stress research, human-biomedical research, animal welfare and applied animal research. The primary focus will be directed at how behavior related stressors, which are of special concern to animal agriculture, impact animal well-being. Unlike environmental stressors, behavior related stressors are still poorly defined and the correlation between such stressors and the biological well-being of animals in unclear. Questions concerning the role of cognition and motivation, what constitutes long-term stress in animals and potential strategies to alleviate stress must be addressed if we are to develop management practices for food animals that will insure the well-being of these animals.

9701875 Planning Workshop for the Agricultural Chapters of Historical Statistics of the United States Millennial Edition
Olmstead, A.L. **Grant 97-35400-4400**

University of California, Davis
Institute of Governmental Affairs **$9,000**
Davis, CA 95616-8617 **1 Year**

This grant will support a research workshop for the agricultural chapter of the *Historical Statistics of the United States: Millennial Edition* to be published by Cambridge University Press in the year 2000. Alan L. Olmstead (UC Davis) is the chapter editor and project director. Julian Alston and Daniel Sumner (UC Davis), Bruce Gardner (University of Maryland), and Paul Rhode (UNC Chapel Hill) are sub-chapter editors. The objective of this workshop is to bring experts in the field of agricultural data together to work with the chapter editors and help define the scope of this important work. The workshop will be held on August 9-10, 1997 at the University of California, Davis, and will be co-sponsored by the Institute of Governmental Affairs and the Agricultural History Center. The *Historical Statistics of the United States* is the standard reference work for economic, political, and social data pertaining to American history. The last edition (1975) provided data through 1970. There is a crying need to both update the existing time series and expand coverage to include the results of recent research. This project aims to fill this void by producing expanded print and electronic editions. Overall, this workshop will help lay the foundation for a new, easily accessible statistical summary of American agriculture that will be widely used by scholars and the general public.

9702133 Conference Toward the Genetic Manipulation of Insects
James, A.A. **Grant 97-35302-4330**

Keystone Symposia on Molecular and Cellular Biology
Drawer 1630 **$7,000**
Silverthorne, CO 80498 **1 Year**

Insects pose a major threat to human health and agriculture. The loss of life due to a single mosquito-borne disease, malaria, averages one person every twelve seconds. Hundreds of millions of dollars are lost annually in the United States due to the effects of insect-borne diseases on plants and animals, and pest insects consume millions of dollars worth of crops every year. Until recently the majority of insect control focused on the use of insecticides. However, the emergence of resistance to insecticides, the increased costs of developing and using new insecticides, and the effects of these toxins on nontarget organisms have made their use increasingly unacceptable. Alternate forms of insect control are being developed and genetic control offers one of the better options for long-term effectiveness. The lessons learned from the successful utilization of sterile insect release to control the screwworm and the Medfly hopefully can be applied to other medically and agriculturally significant insects. The Keystone Symposium, "Toward the Genetic Manipulation of Insects", brings together researchers who have contributed to a better understanding of insect genetics and how it can be exploited in their control. This Symposium will permit the dissemination of the latest results, foster interactions between scientists, and promote the development of new genetic control strategies. This is a particularly timely Symposium considering recent advances in transgenesis of the Medfly and mosquito. We anticipate that this Symposium will be a key event in accelerating research in genetic control of insects over the next five years.

9702092 Second International Workshop on Transgenesis of Invertebrate Organisms
Handler, A.M.; O'Brochta, D.A. **Grant 97-35302-4146**

USDA Agricultural Research Service
Center for Medical , Agricultural, and Veterinary Entomology **$7,000**
Gainesville, FL 32608 **1 Year**

The "Second International Workshop on Transgenesis of Invertebrate Organisms" will be held at the Asilomar Conference Center, Pacific Grove, California on May 9-13, 1997. The purpose of this workshop is to bring together an international group of scientists, having the common goal of achieving germline and somatic (transient) transformation in a wide array of invertebrate organisms, so that information may be shared and collaborative efforts promoted. The organisms of particular interest are agriculturally and medically important insects, agriculturally important nematodes, and marine invertebrates of economic and medical importance. The rationale for the workshop series is that there is an enormous need for the development of efficient and routine methods for gene transformation in these invertebrate organisms, for both basic investigations and practical application. Many of the scientists working in this broad field do not usually interact, yet they share many of the same technical and theoretical obstacles. Indeed, many of the approaches taken in terms of DNA delivery, chromosomal integration, and transformant markers are quite similar, if not the same. The scientific interactions and sharing of ideas made at the first workshop have already resulted in several productive collaborations, which we hope can be continued and expanded. Of particular importance are regulatory concerns for the release of transgenic organisms, and this will be specifically addressed at this conference.

9702838 2nd International Workshop on Bemisia and Geminiviral Diseases
Mayer, R.T.; Maxwell, D.P. **Grant 97-35303-4562**

USDA, Agricultural Research Service
U.S. Horticultural Research Laboratory **$5,000**
Orlando, FL 32803-1419 **1 Year**

Whiteflies (*Bemisia* spp.) as pests and vectors of ssDNA plant viruses, the geminiviruses, have become a major threat to food security in many regions of the world and have caused major crop losses (>$1 billion) in Florida and the southwestern USA. These losses have occurred in spite of the extensive use of insecticides. In 1994 the 1st International Workshop on *Bemisia* was held in Israel and the 1st Symposium on Geminiviruses, in Spain. The two organizing groups for these meetings have joined forces and will sponsor the 2nd International Workshop on *Bemisia* and Geminiviral Diseases on June 7-12, 1998 in San Juan, Puerto Rico. This four and a half day workshop will provide opportunities for scientists from different disciplines to integrate information on research and management of *Bemisia* and geminiviral diseases, to foster networking among scientists from private and public sectors with colleagues from developed and developing countries, to minimize duplication of efforts, and to provide guidance for future research. Mornings will be devoted to topics of interest to all participants; and afternoons, to more specific topics in two concurrent sessions, and poster presentations are set for two evenings. A one-day field trip will be made to sites showing damage caused by the Bemisia-geminivirus complex.

9703357 Nitrogen Assimilation: Molecular and Genetic Aspects
Barber, M.J.; Solomonson, L.P.; Cannons, A.C. **Grant 97-35305-4381**

University of South Florida, Tampa
Department of Biochemistry and Molecular Biology **$5,000**
Tampa, FL 33612 **1 Year**

Nitrogen assimilation represents one of the fundamental processes of plant metabolism. Inorganic nitrogen is converted to a biologically useful form via two pathways, nitrate assimilation and nitrogen fixation, that require the enzymes, nitrate reductase and nitrite reductase and nitrogenase, respectively. The 4th International Conference on Nitrogen Assimilation: Molecular and Genetic Aspects is designed to bring together researchers in both fields of nitrogen assimilation to share and discuss the most recent advances in these fields and to encourage future collaborations. Topics to be covered in the various conference sessions include the structure and function of nitrogenase, biosynthesis of the various forms of the molybdenum cofactor, uptake and transport processes that support nitrogen assimilation, structure and function of nitrate reductase, light regulation, transcriptional regulation, molecular evolution of nitrate reductase genes and biotechnology. The conference format will include invited presentations by internationally-recognized authorities in the various aspects of nitrogen assimilation and contributed poster presentations.

9702284 International Endophyte/Grass/Animal Toxicosis Symposium
Hill, N.S.; Thompson, F.N.; Stuedemann, J.A. **Grant 97-35204-4193**

University of Georgia
Department of Crop/Soil and Physiology/Pharmacology **$7,500**
Athens, GA 30602 **1 Year**

Tall fescue (*Festuca arundinancea Schreb.)* is grown on approximately 35 million acres of pasture in the United States. Nearly all tall fescue pastures are infected with a mutualistic endophytic fungus, *Neotyphodium coenophialum*, that produces ergot alkaloids. Animals grazing endophyte-infected tall fescue pastures ingest ergot alkaloids. Animals grazing endophyte-infected tall fescue pastures ingest ergot alkaloids and suffer from a disorder known as *fescue toxicosis*. Fescue toxicosis costs U.S. livestock producers $789 million annually due to reduced productivity. The endophyte provides tall fescue resistance to biotic and abiotic stresses, increasing its region of adaptation. Therefore, producers utilizing tall fescue pastures are trapped in a biological dilemma of utilizing endophyte-infected tall fescue pastures and suffering animal losses or use non-persistent but endophyte-free pastures. Other endophyte-mediated livestock toxicoses occur worldwide. Because of the complexity of the interactions between endophytes, their grass hosts, livestock, and the environment, unique strategies for resolving these toxicoses have been developed by scientists from around the world in different research disciplines. Plant breeding, immunology, and endophyte manipulation appear to be possibilities for resolving the toxicoses. This project will help support an international symposium that will provide a forum for exchange of the current status of research efforts in ecology and taxonomy of endophytes, endophyte-derived livestock toxicoses, cellular and molecular techniques for plant and animal studies, commercial uses of endophytes, and current recommendations for alleviating toxicoses on the farm. The findings/recommendations will be debated and future research avenues explored. A bus tour of ongoing cooperative research between The University of Georgia and USDA-ARS will be conducted.

9702642 Gordon Conference: Biology of Spirochetes
Zuerner, R.L. **Grant 97-35204-4509**

USDA Agricultural Research Service
Zoonotic Diseases Research Unit **$7,500**
Ames, IA 50010-0070 **1 Year**

Funds are sought for support of the third Gordon Conference on the Biology of Spirochetes. This is a unique international conference which brings together investigators working in all areas of spirochete biology. Recent technological advances in molecular biology and immunology have been applied with great success to studying these bacteria. There is a critical need for researchers to exchange new information. The two previous Gordon Conferences on the biology of spirochetes have led to greater collaborative efforts and reduced duplicative research.

Spirochetes are bacteria which often cause chronic infections. These infections are usually difficult to diagnose or treat. Leptospirosis, swine dysentery, intestinal spirochetosis of pigs, and a colitis of poultry are important to the livestock and poultry industries and cause significant economic losses. Spirochetes are also the likely causes of epizootic bovine abortion and papillomatous digital dermatitis (hairy footwart).

The conference will focus on research at the forefront of spirochete research. Several diverse topics will be covered including virulence factors, interactions with host cells, host responses to infection, ecology, and regulation of gene expression. Because these bacteria share many similarities, research on one group of spirochetes often leads to new discoveries with other spirochetes.

9701839 National Adult Family Care Conference to Highlight Latest Research Findings on Adult Family Care
Fetterman, E.; McKenna, C. **Grant 97-34501-4561**

National Adult Family Care Organization, Inc. **$10,000**
Amherst, MA 01002-2739 **1 Year**

Adult Family Care significantly benefits rural communities by providing 1) non-farm income to caregivers, and 2) quality care to rural Americans at a substantial savings to local, state and federal governments. The National Adult Family Care Organization's Research Conference identified research needs, updated information and advanced research in rural Adult Family Care programs nationally. Adult family care provides rural communities with a resource for elders and disabled adults other than institutionalization in an urban setting as well as an income-generating opportunity for rural homeowners as they care for elders and disabled adults in an adult family care form of intervention. The rural family providing care benefits through additional income received via public and private sources; the rural elder or disabled adult benefits as institutionalization is avoided by living in a family setting; the federal and state governments are benefitted through reduced expenditures as care is provided in an adult family care setting versus institutionalization. The cost of nursing homes range from $4,000 to $6,000 per month per person, compared to $700 per month paid to an adult family caregiver for each person. If rural communities in other states adopt the Adult

Family Care program, it would help revitalize rural areas for both the rural caregiver and the client in the Adult Family Care program, improving the quality of life for both.

9702298 Gamete Biology: Fundamental and Applied Aspects in Animal Reproduction
Overstrom, E.W.; Albertini, D.F. **Grant 97-35203-4961**

Tufts University
School of Veterinary Medicine **$5,000**
North Grafton, MA 01536 **1 Year**

This project will support the travel and living accomodations for a group of invited speakers at a mini symposium to be held in conjunction with the International Embryo Transfer Meeting to be held in Boston, MA in January of 1998. The subject of the symposium is Gamete Biology: Fundamental and Applied Aspects in Animal Reproduction. Remarkable advances have been made in recent years on the conditions that are required in vivo to sustain the development and maturation of mammalian gametes. Only recently has it been possible to manipulate and control aspects of gamete differentiation using in vitro methodologies that would improve means for assessing gamete quality as well as provide alternatives to cryopreservation. The group of speakers proposed to participate in this mini symposium have made important contributions in the development of culture and cryopreservation techniques in experimental and domestic species. Their contributions to this meeting should enhance the research programs of attendees with respect to the more widespread application of these emerging methods in large animal reproduction.

9702069 Symposia on Microbial Food Borne Hazards - Basic Research/Industry/Regulatory Concerns
Bunning, V.K. **Grant 97-35201-4504**

DHHS Food and Drug Administration
Immunology Branch **$6,000**
Laurel, MD 20708-2476 **1 Year**

The Food Microbiology Research Conference (FMRC) focuses on the presentation of basic/applied research by scientists within academia, government, and industry. The activities of the FMRC are governed by a set of bylaws, which were adapted as part of the process of gaining tax exempt status (private/nonprofit), thereby providing formal structure to the conference's financial management. FMRC meets every two years in the Chicago area, participation is by invitation, and the program format (panel discussion; individual seminars; symposia) is designed by an Executive Committee. The goal of the Conference is to advance knowledge and understanding in the area of food microbiology. FMRC meeting represent one of the few regularly held gatherings exclusively devoted to food microbiology. Industry/regulatory concerns are incorporated into the program for timely and relevant research topics. The XVI FMRC is scheduled for 9-12 November 1997 at the Ramada Inn, Chicago-O'Hare. Confirmed symposia include: Molecular Approaches for Food Safety Assurance; Resistance-Control-Host Response to Bacterial Pathogens; Developments in Bacterial Inactivation and Reduced Consumer Risk; Roundtable panel on Zero Tolerance/Risk; and General Topics. Invited speakers and chosen symposia topics are designed to promote research/industry/regulatory interaction, thereby furthering the overall goal of enhancing food safety.

9703919 International Nomenclature Workshop
Davisson, M.T. **Grant 97-35205-5080**

The Jackson Laboratory **$5,000**
Bar Harbor, ME 04609-1500 **1 Year**

The rapid growth of comparative genome mapping and the integration of biological information derived from various model organisms have become powerful tools in understanding the structure and function of species genomes. Accurate terminology is essential for effective communication both in the literature and in database cross-linking in order to expedite publications by the scientific community in an understandable and consistent manner. The International Nomenclature Workshop, held at The Jackson Laboratory from April 30 through May 3, 1997, served as a forum for discussing current nomenclature issues and for generating ideas for dealing with the rapid growth in our knowledge of gene information and the coordination of this information among nomenclature groups for different species. Although the mouse and human nomenclature committees have met formally in the past, this was the first multi-organism genetic nomenclature workshop. The workshop brought together approximately 40 scientists representing various species (vertebrates, invertebrates, yeast and plants), and databases (MGD,GDB,GSDB,EMBL,NCBI) to discuss nomenclature issues such as 1) developing systematic approaches to nomenclature and symbol assignment across the species, 2) improving links between databases, 3) organizing genes into gene families and retrieving family information from databases, 4) fostering working relationships among those involved in nomenclature, and 5) encouraging community curation of gene family designations across species. Genome databases are being developed within the USDA National Animal Genome Research Program for four major groups, cattle sheep, pigs and chickens, with plans for development for horses and some aquatic species. Nomenclature guidelines are essential to the development of these databases

because nomenclature is at the core of the growing effort to integrate biological information from various organisms. A summary manuscript of the Workshop is being prepared by the organizing committee for publication in Genomics.

9701523 Conference on Plant Cell Biology
Green, P.J.; Somerville, C.R.; Quatrano, R.S. **Grant 97-35304-4725**

Michigan State University
MSU-DOE Plant Research Laboratory **$7,000**
East Lansing, MI 48824-1312 **1 Year**

This meeting will emphasize how studies on cell organization, regulation of cellular processes, and cell-cell interactions mediate plant development. Although most speakers will emphasize cell biological approaches to these problems, molecular, genetic and biochemical perspectives will also be represented.

In contrast to more specialized plant meetings held recently, this conference will integrate studies on the whole plant cell. Presenting a cohesive picture of the plant cell and how plant development is controlled at the cellular level is not the goal of large general plant meetings (e.g., Plant Biology 97 or the International Plant Molecular Biology meetings) or meetings that concentrate on only one species. Even a large conference like the annual Cell Biology Meeting is not expected to cover adequately the unique features of the plant cells such as plasmodesmata, the cell wall, and totipotency.

In addition to providing an optimal forum for the exchange of scientific information among principal investigators, this meeting is designed to maximize the participation of postdoctoral and graduate trainees. We plan to accomplish the latter by defraying conference costs of the graduate students and postdoctoral students submitting the best abstracts, including short talks by graduate students and postdoctoral students in the program, and providing reading lists in the areas covered by the conference for those trainees desiring additional information. Accordingly, this conference should update trainees as well as established investigators on the increasing number of exciting questions in plant cell biology and encourage novel approaches and interactions to address them.

9703365 16th North American Symbiotic Nitrogen Fixation Conference
Vance, C.P.; Graham, P.H. **Grant 97-35305-4401**

USDA Agricultural Research Service
Plant Science Research Unit **$4,000**
St. Paul, MN 55108-6024 **1 Year**

Legume plants in symbiosis with the soil bacteria rhizobium obtain most of their nitrogen fertilizer from the air through a process called symbiotic nitrogen fixation. This process occurs in small wart-like growths, termed nodules, which grow on plant roots. The rhizobium bacteria in the nodules convert atmospheric nitrogen gas into ammonia. Plant enzymes (protein catalysts) in nodules change the ammonia into amino acids. Through this process 90 million metric tons of nitrogen fertilizer are acquired each year. To replace this nitrogen with industrially produced fertilizer would cost approximately $30 billion annually. Symbiotic nitrogen is not only cost effective but also is important for sustainable agriculture. It reduces our need for consuming nonrenewable resources and the nitrogen gained by this process is less likely to leach through soil and contaminate ground water. Thus, improvements in nitrogen fixation are important goals for American agriculture. Funds awarded in this travel grant will be used to support U.S. scientists and students attending the 16th North American Symbiotic Nitrogen Fixation Meeting. The objective of this professional meeting is to bring together the North American scientific community working on symbiotic nitrogen fixation to discuss the most recent advances in research and identify approaches to apply this new knowledge.

9701592 Sixteenth Annual Missouri Symposium
Baskin, T.I. **Grant 97-35304-4567**

University of Missouri
Division of Biological Sciences **$5,000**
Columbia, MO 65211 **1 Year**

This proposal asks for partial support for the 16th Annual Missouri Symposium, entitled "Signs and Roadways: Protein Traffic and the Cytoskeleton." The meeting is sponsored by the University of Missouri's Interdisciplinary Plant Group (IPG); the dates will be April 16 through April 19th, 1997; and the meeting will be held on campus, at the University of Missouri, Columbia.

The objective of the meeting is to provide a forum for the presentation of recent and significant research in two fields of plant cell biology: compartmentation of proteins within the endomembrane system, and the cytoskeleton. Each of these fields is fast moving and currently producing results of considerable interest, and each field has specialized meetings typically on an every-other-year basis. However, the fields of protein targeting and the cytoskeleton share the conceptual framework of understanding how things move within the cell. Bringing these two groups of investigators together in a meeting, where they will learn from and interact with each other, will enrich each field. The meeting will have sessions on the endoplasmic reticulum, Golgi apparatus,

vacuoles, organelle movements, microtubules and actin. The format of the meeting provides for ample time for questions during the formal session, and for informal interactions during the two long poster sessions as well as social functions.

9701350 1997 Gordon Research Conference on Plant Cell Genetics and Development
Messing, J. **Grant 97-35300-4214**

Rutgers, The State University of New Jersey
Waksman Institute **$5,000**
Piscataway, NJ 08855-0759 **1 Year**

The Gordon Research Conference on Plant Cell Genetics and Development (PCG&D) is a conference now held in alternate years with the Plant Molecular Biology conference. The last PCG&D conference was held in June 1995 and the program emphasized studies of apical meristem and primordia. Last year's Plant Molecular Biology conference in July 1996, included sessions on gene silencing, light signaling, plant hormone action, plant disease resistance, etc. The upcoming PCG&D conference will be held in June 1997 at New England College in Henniker, New Hampshire. Although the program will cover a broad range of subjects on plant genetics, it will highlight the importance of synteny of plant genomes on our understanding of gene architecture and function.

9703619 Gordon Research Conference on Mammary Gland Biology
Schanbacher, F.L.; Neville, M.C. **Grant 97-35206-5083**

Ohio State University
Department of Animal Sciences **$20,000**
Wooster, OH 44691-9805 **1 Year**

Support is requested for the Fourteenth Biennial Gordon Research Conference on Mammary Gland Biology held at Plymouth State College, Plymouth, NH, June 15-20, 1997, involving scientists from divergent disciplines with a common interest in mammary biology and lactation. The program, organized around research areas with rapid advances and to stimulate interdisciplinary advances in the field, includes sessions on: Questions in Mammary Biology and Disease; Breast Cancer Genes in Mammary Development and Neoplasia; Estrogens and Xenoestrogens in Mammary Development and Cancer; Prolactin and its Receptors in Mammary Regulation; Stromal and Autocrine Factors in Mammary Development; Transcription Factors and Signal Transduction in Mammary Regulation; Pathways and Regulation of Milk Secretion; Bioactive Components of Milk; and Biochemistry and Molecular Regulation of Milk Proteins. Junior scientists (grad. students, postdoctoral fellows) will be encouraged through poster session highlights presentations and participation in a workshop on Mammary Specific Gene Deletion. To encourage new scientists into the field, 21 of the 28 invited speakers have not spoken previously on the program of this Conference. Interdisciplinary discussion of ideas and information between dairy and animal scientists and basic biomedical researchers is encouraged by conference presentations and discussions which will not be published or cited, the discussion-intensive program, and an informal atmosphere. Several presentations relate to agricultural mammary and lactation biology and target areas for the Research Initiative in Improving Animal Growth and Development. Funding is requested in support of selected invited speakers whose topics fit interests of the USDA and agricultural mammary scientists, and to facilitate participation of junior scientists.

9702622 Gordon Research Conference on Mycotoxins and Phycotoxins
Haschek-Hock, W.M. **Grant 97-35204-4300**

Gordon Research Conferences
University of Rhode Island **$5,000**
West Kingston, RI 02892-0984 **1 Year**

The Gordon Research Conference program fosters interdisciplinary scientific interchange and enhances productive interactions among scientists from around the world. Scientists from universities, government laboratories, and industry are given opportunities to interact on a formal and informal basis. The Gordon Research Conference on Mycotoxins and Phycotoxins is unique since it brings scientists with interest in either mycotoxins or phycotoxins, or both, and covers a wide range of topics ranging from basic chemistry to mechanisms of action and risk assessment. This conference meets every two years; the next meeting is June 15-20, 1997, in Henniker, New Hampshire. The goal of the conference is to advance knowledge and understanding in the area of mycotoxins and phycotoxins. Strong international participation is a feature of this meeting. At the last meeting, held in 1995, 36% of participants were from countries outside the USA, including Canada, Southern America, Europe, Asia, Australia and Africa.

Mycotoxins are naturally-occurring compounds produced by fungi which frequently infest grain crops worldwide. These compounds, for the most part, cannot be eliminated totally and thus are found in human foods and animal feed. This is especially true in developing countries where growing and storage conditions are often poor. Mycotoxins are known to affect animal and

human health. These effects can be acute or chronic, and may include carcinogenesis. In addition to the direct economic costs of animal losses and production losses, mycotoxins are extremely good non-tariff trade barriers. Risk assessment and food safety issues in terms of human health are ongoing issues of public debate. This grant is for meeting support of scientists who will address current issues in the mycotoxin area including chemistry, toxin metabolism, emerging and re-emerging toxins/toxicoses, molecular epidemiology, neurobehavioural effects, and food safety.

9701568 1997 Gordon Research Conference on Epigenetic Effects on Gene Expression
Matzke, M.A. **Grant 97-35301-4342**

Gordon Research Center
Gordon Research Conferences **$5,000**
West Kingston, RI 02892-0984 **1 Year**

The 1997 Epigenetics Gordon Research Conference is the second in this series, and judging from the response to the first, should attract an enthusiastic group of scientists. Epigenetics is one of the most exciting frontiers in genetical research. A formal definition of epigenetics would be that it deals with changes in gene expression, particularly gene silencing, that are brought about by potentially reversible changes in DNA methylation or chromatin structure. A simple way to think about epigenetics is that it comprises the “gray” aspects of genetics, i.e., the genes involved do not always conform to the black and white Mendelian laws of inheritance. Examples include genes that are expressed only when they are inherited from either the male or the female parent (“parental imprinting”), genes that are continually silenced for one or more generations (paramutation), and genes that exhibit continuous variation in expression levels (variable expressivity). The universal nature of epigenetic phenomena is apparent from the diverse effects that have been discovered in organisms ranging from single-celled yeasts and filamentous fungi to higher plants and animals. Epigenetics has implications for plant breeding and adaptation as well as human development and disease. Understanding the causes of epigenetic gene silencing is of particular interest for the agricultural biotechnology industry, because unwanted inactivation of new genes introduced into genetically engineered varieties is frequently a problem. The Epigenetics Gordon Conference is unique in bringing together researchers working with various epigenetic phenomena from different organisms, thus permitting interactions among scientists who might not normally meet.

9702257 Gordon Research Conference on Fertilization and Activation of Development
Nuccitteli, R.L.; Myles, D.G. **Grant 97-35203-4142**

University of Rhode Island
Department of Molecular and Cellular Biology **$4,500**
West Kingston, RI 02892-0984 **1 Year**

The conference will be held July 27-August 1, 1997, at the Holderness School, Plymouth, New Hampshire. There will be nine sessions in the conference, following the Gordon Research Conference format: 1) The mechanism of sperm activation; 2) Penetration of egg surface coats and sperm-egg binding; 3) Initiation of egg activation; 4) Egg activation pathways; 5) Plenary Lecture by Ryuzo Yanagimachi; 6) Membrane fusion mechanisms; 7) The cell cycle and early development; 8) Current topics and contributed papers; 9) Integrins and disintegrins in fertilization. This will be an international meeting with speakers and discussion leaders from Europe (9), the Mid East (1), Far East (3) and Central America (1), as well as the U.S. (24). Among these 37 speakers and discussion leaders are six women and three ethnic minorities.

9701965 Gordon Research Conference on "Photosynthesis: Biophysical Aspects".
Okamura, M.Y. **Grant 97-35306-4398**

Gordon Research Conference
c/o University of Rhode Island **$8,000**
West Kingston, RI 02892-0984 **1 Year**

The goal of photosynthesis research is to answer the question of how sunlight is converted into chemical energy in living systems. Current research has been focussed on structure and function of the molecular complexes that compose the photosynthetic machinery located in cell membranes of plants and photosyntheric bacteria. Major advances have been made in recent years with biophysical approaches to photosynthesis. The Gordon Conference on "Photosynthesis:Biophysical Aspects" brings together leading researchers from diverse fields; structural biology, biophysics. spectroscopy, molecular biology, synthetc chemistry, and computational biophysics to exchange ideas and report recent fndings. Some of the research to be reported include the following: molecular structures of protein complexes determined using x ray diffraction and spectroscopic techniques, the temporal sequence of events resolved using pulsed laser experiments, the simulation of molecular models for energy conversion processes using new computational methods. The results of this conference will advance our understanding of photosynthesis which forms the basis for crop productivity.

9700497 Development and Comparative Immunology Congress
Kaatari, S.L. **Grant 97-35204-4120**

College of William and Mary Virginia Institute of Marine Science
Department of Environmental Sciences **$9,000**
Gloucester Point, VA 23062-1204 **6 Months**

The International Society for Development and Comparative Immunology (ISDCI) was founded in 1978 to bring together investigators studying immunological processes in all animal species, with particular concentration upon fish, other non-mammalian vertebrates, and invertebrates. To achieve this objective, ISDCI convenes an international congress every three years and assists in the organization of additional international conferences, symposia, workshops, and training courses each year. The primary objective of the Seventh Congress of the ISDCI is to serve as a vehicle for the presentation of the most current research of the membership of the Society and those scientists who possess similar interests. Of particular pertinence to the mission of the NRICGP of the USDA is the focus of a number of sessions on the topics of disease resistance in aquaculturally and agriculturally important animals, the breeding and understanding of the genetics of disease resistance in these animals, the development of immunological techniques for the monitoring of diseases, and the analysis of disease susceptibility and resistance in insect vectors and agricultural pests.

9700001 Cytokines and the Type I Type II Paradigm
Davis, W.C.; Brown, W.C. **Grant 97-35204-3952**

Washington State University
Department of Veterinary Microbiology and Pathology **$8,500**
Pullman, WA 99164-7040 **6 Months**

Cytokines and their receptors have become a major focus of research in humans as well as food and companion animals because of their central role in the regulation of cellular and humoral immune responses. The insights gained from studies on the function of these molecules suggest they may, alone or in combination, prove useful as agents to selectively alter the development of an immune response to pathogens and parasites and derived submit vaccines. In addition, cytokines and their receptors may prove useful as therapeutic agents to selectively alter or redirect immune responses harmful to the host. The advances made in analysis of the expression of cytokines in different species have now made it clear that both $\alpha\beta$ and $\gamma\delta$ T cells secrete different combinations of cytokines following stimulation, indicating that both populations of cells are involved in regulation and expression of immunity. An international symposium has been organized to provide an opportunity for investigators to review the current status of knowledge on cytokines and their receptors in humans, in food and companion animals, and in laboratory animals, and to exchange theories, methodology, and new data on the role of cytokines secreted by $\alpha\beta$ and $\gamma\delta$ T cells in the regulation of immune responses. The interaction of leading scientists at the meeting will lead to new insights into how cytokines and their receptors interact and function during the development and expression of immune responses and the development of methods to use cytokines to improve animal and human health.

9701257 Eighth International Conference on *Arabidopsis* Research
Amasino, R.M. **Grant 97-35304-4554**

University of Wisconsin, Madison
Department of Biochemistry **$7,000**
Madison, WI 53706-1569 **1 Year**

This award is for support for the Eighth International Conference on *Arabidopsis* Research to be held at the University of Wisconsin, Madison WI, June 25-29, 1997. The aim is to provide an opportunity for researchers to exchange ideas on all aspects of *Arabidopsis* research, including genome-related efforts. The conference will include sessions on plant cell growth, signal transduction, hormone signaling, cell signaling, meristem function, adaptation to stress, metabolic regulation, light-regulated development, and cellular structure. Thirty-nine speakers have been invited and another 24-26 will be chosen from the submitted abstracts for short talks. This meeting has over 600 participants and greater than 500 of those will present a poster or talk. The conference will maximize participation of young scientists by inviting relatively young PIs, postdoctoral fellows, and graduate students to give many of the talks.

9703351 Travel by NRA-Supported Scientists to the 11th International Nitrogen Fixation Congress
Ludden, P.W. **Grant 97-35305-4396**

University of Wisconsin, Madison
Department of Biochemistry **$5,000**
Madison, WI 53706-1569 **6 Months**

Funds in this award will be used to support the travel of USDA/NRI-supported scientists to attend the International Congress on Nitrogen Fixation to be held in Paris, France July 20-25, 1997. This meeting is the most important meeting of scientists in the area of nitrogen fixation, and all aspects of nitrogen fixation are covered at this international symposium series which occurs every second or third year. The participation of US scientists is critical to the success of these international symposia, and it is important to the scientific effort in the United States that NRI-supported scientists attend this symposium where the latest information in crucial areas of nitrogen fixation will be presented. A special effort will be made to support the travel of young scientists, women and minorities for attendance at this meeting.

9703456 Steenbock Symposium on the Biosynthesis and Function of Metal Clusters in Enzymes
Roberts, G.P. **Grant 97-35305-4397**

University of Wisconsin,Madison
Department of Bacteriology; Center for the Study of Nitrogen Fixation **$3,000**
Madison, WI 53706-1521 **6 Months**

Funds from this award will be used to support the travel of speakers to attend the 1997 Steenbock Symposium to be held in Madison, Wisconsin June 10-14, 1997. The topic of this symposium will be the biosynthesis and function of metal clusters for enzymes. Within this topic of the symposium are a number of areas of central interest to NRI/USDA-funded projects. These include nitrogen fixation, nitrate reduction, denitrification, enzymes involved in nitrogen and C1 metabolism, and other aspects of metal metabolism involved in critical assimilatory pathways important to agriculture. An effort will be made to use these funds to support the travel of young scientists, women and minorities to attend the Steenbock Symposium. This symposium is a unique effort to bring together scientists working on various aspects of primary assimilatory pathways important to agriculture to discuss common features among pathways of biosynthesis of complex metal clusters involved in those different pathways.

9702956 Travel support for the XI International Entomophagous Insects Workshop
Strand, M.R. **Grant 97-35302-4143**

University of Wisconsin
Department of Entomology **$7,000**
Madison, WI 53706-1598 **1 Year**

Among the most important organisms used in the biological controlof insect pests are parasitic and predatory insects. Parasitoids and predators together are called entomophagous insects. Improving the use of entomophagous insects in biological control requires the expertise of scientists from different disciplines. Although many conferences address aspects of biological control, few forums are available where scientists working on the systematics, ecology, physiology and the genetics of entomophagous insects meet as group. The International Entomophagous Insects Workshop is perhaps the only meetings dedicated to bringing together scientists with diverse expertise on the biology of entomophagous insects. This meeting provides an intimate forum for individuals to discuss their research with an audience of broad expertise. Many of the leading researchers in the world who study entomophagous insects will attend this meeting. The XI International Entomophagous Insects Workshop will be held July 12-16, 1997 in Madison, Wisconsin, USA. Support from theUSDA NRI Entomology program will allow many key scientists in this field to attend the upcoming conference and present their work.

9702992 Symposium: Insects as Model Systems in Biology
Kumaran, A.K.; Riddiford, L.M. **Grant 97-35302-4242**

Marquette University
Department of Biology **$ 5,000**
Milwaukee, WI 53201-1881 **0.5 Years**

Insects pests of agricultural crops, the major impediment in the production of food and fiber to meet the needs of the world's population, have been the subject of study by entomologists from the time of established agriculture. Through the study of the biology and behavior of insects and in collaboration with synthetic organic chemists, entomologists have devised organochemical, biological and hormone/pheromone-based insect control agents, in the past half century. Insects have also served as excellent models to study basic biological questions. In particular, developmental genetic studies of the fruit fly *Drosophila melanogaster* yielded a wealth of information on the basic life processes such as the mode of hormone action, the control of cell death, and the

immune system. Some of the molecular insights gained in the study of these model insects have the potential to revolutionize the approach for insect control.. The proposed symposium on *Insects as Model Systems in Biology* as a Section B (Insect Physiology and Biochemistry and Toxicology and Molecular Biology) sponsored Entomological Society of America program symposium at its next annual meeting in Nashville, Tennessee in December, 1997 would promote fruitful interactions between applied entomologists and basic insect molecular biologists and pave the way for development of novel insect control methods. The symposium topics include the molecular basis of metamorphosis, immunity, cell death, chemical communication, sexual behavior, and pattern formation in insects.